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The Birds of Sind : A Review

BY

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(With a map)

It is 45 years since a comprehensive account of the birds of the former province of Sind (West Pakistan) was published. Since then, the environment of the alluvial plains of Sind has been considerably altered by a very extensive spread of irrigation canals, agricultural development and increase in population. These changes are still occurring.

An up-to-date review of the avifauna of the alluvial plains is presented, to indicate changes in status that have resulted from the new environment. The review is based on amateur observations by the authors, who were resident in the province for three years. Most noticeable of the changes is the decline of many of the larger, 'wetland' species, which is likely to continue. In contrast, it can be assumed that the population of many passerines has increased, while a few species, such as the Koel and Common Indian Nightjar, have extended their range.

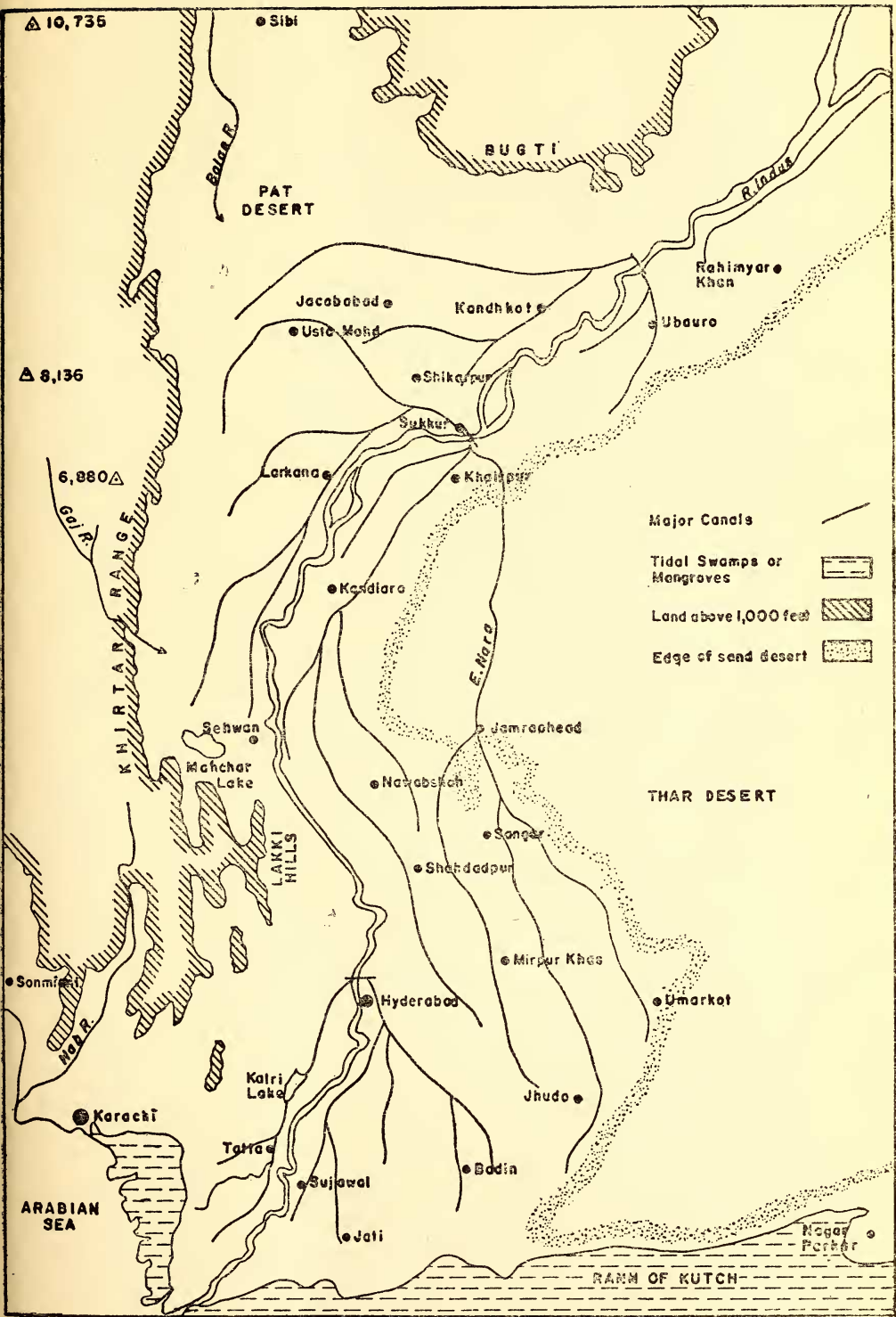
The former province of Sind in West Pakistan has an area of 53,000 sq. miles. About half of this forms part of the great sandy waste of the Thar Desert. The western margins are mountainous, rising to over 7000 feet, while the Arabian Sea and a wide tidal zone form the southern boundary. This review is concerned mainly with the great alluvial plains of the River Indus, which comprise over 20,000 square miles of Sind. The climate is arid and hot, and the plains are barely penetrated by the monsoon. Within this area average annual rainfall ranges from 3 inches in the north to 8 inches in the south. In the north, summer temperatures often exceed 120°F., while frost is sometimes experienced in winter. Temperatures in the south are moderated by the SW winds which blow throughout the summer months. Thus the

plains have a desert climate, and their fertility is dependent upon irrigation from the Indus.

In the middle of the last century, only about 800 square miles, or 4 per cent, of the plains received sufficient irrigation water to permit cultivation. By 1921 this area had increased about four-fold. The first barrage across the Indus was built at Sukkur in 1932, and two more have been added since, so that virtually all the plains are now within irrigation command, a 25-fold increase. It can truly be said that the face of Sind has been changed, and mostly within the last 35 years. In fact, however, less than 15,000 square miles is under cultivation, for while new land is being reclaimed, other land is lost through water-logging and salinity. Nevertheless huge expanses of formerly monotonous scrubby desert have been replaced by a lush fertility that would have appeared inconceivable 40 years ago. The main crops grown are rice and cotton in summer, and wheat in winter. Accompanying these developments, the population has nearly doubled, from $3\frac{1}{2}$ million in 1931 to 6 million in 1961, and 80 per cent of this is rural. At the same time the network of roads has expanded proportionally, so that all parts of the plains are now readily accessible.

It is 45 years since a comprehensive review of the birds of Sind was published (Ticehurst 1922-1924), and this pre-dates the great developments that have occurred. A number of workers, notably Eates (1937 *et seq.*), have contributed short notes to show some of the changes in the avifauna that were occurring, but time is now ripe for a fresh attempt at a review to be made. The authors were stationed in Sind for three years, from 1963 to 1965, and in the course of carrying out soils and agricultural surveys travelled extensively over the alluvial plains (although not penetrating far into the surrounding regions of sand and rock desert, and tidal mudflats). Ornithology was, however, only a spare time activity, and specimens were not collected, so that inevitably there are gaps in the field identification of some of the more difficult groups. The work of Ticehurst still remains the standard reference to the Sind avifauna, but it is hoped that the review below illustrates the more important changes in distribution that have occurred in some groups.

Without statistical evidence, it is of course impossible to review changes in population quantitatively. For example, the statement that a particular species is 'common and widely distributed in cultivated areas', in both 1922 and 1965, assuming this statement to have the same general meaning, would totally fail to reveal the increase in population that must have occurred. Many of the endemic species that are adapted to or tolerant of a well-populated, agricultural environment must have increased, although the extent cannot be assessed. At the same time, many winter visitors, whether they have increased in numbers or not,



The Alluvial plain of Sind

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are dispersed over a much greater area, and thus may give a false impression of reduced numbers.

However, special attention must be paid to those groups that are dwindling, in some cases drastically. The larger 'wetland' birds are those most affected, for example the storks and ibises, and these are perhaps the wilder birds that would be expected to suffer most from the enormously increased disturbance by man. Readers of Ticehurst's notes will be struck by the impression he gives of sheer numbers, in some species that are now nearly extinct in Sind. We should stress, however, that we rarely penetrated the wild 'no-man's zone' between land and sea that forms the southern boundary of the province, and there is evidence that this remains the last stronghold in Sind of some remnant populations.

As a result of the changes in the water regime, wetland habitats may have actually increased, and changed in distribution. Within the canal areas, there are over 900 square miles of swampy and flooded land, although over half of this is only seasonally wet. This figure does not include the great Sind lakes, such as Manchar and Kalri, and the wide area between the flood protection bunds of the Indus, a large proportion of which is flooded each summer. The rise in water-tables has meant that many natural depressions, often formerly used for rice crops, are now swampy, or have become jheels. Such jheels are especially common in the plains south of Hyderabad (e.g. Muradani Dhand, in Tatta District) and in some districts in the north, west of the Indus (e.g. Habibkot, near Sukkur). In addition, pools of waste irrigation water, often very saline, as well as the rice fields in late summer and the partially dry beds of seasonal canals in winter, form ideal habitats for waders. The larger lakes are mostly distributed around the margins of the plain : Haleji, Hadeiro, Jhol and Kalri are a notable group near Tatta. Haleji and Kalri are now fresh-water storage lakes, but the seepage zones outside their containing bunds often have shallow saline pools that are more like the waters of Hadeiro and Jhol. Manchar Lake near Sehwan is well known, but its area has diminished since floods have been controlled. In the east, there are several lakes, some of them deep, lying between the sandhills at the edge of the Thar Desert, but we could only visit one or two of them. With future development, the acreages of surface fresh-water storage areas is likely to be increased, but artificial drainage may drastically diminish the natural jheels and swampy areas.

The list that follows is placed in the order of Ripley (1961). The notes are concerned mostly with distribution and status with particular reference to the alluvial plains, and bracketed negative records are included where appropriate. Place-names are shown in the sketch map.

Podiceps cristatus (Linnaeus). Great Crested Grebe

Ticehurst saw this bird on the coast, but never inland in Sind, and mentions only one inland record, at Manchar Lake in January in the last century. Ripley does not name West Pakistan in its wintering range. Our only records are inland, at Hadeiro, in the summer of 1965. There was a party of 4 on May 23, which had increased to 10 on June 27.

[Podiceps caspicus (Hablizl). Blacknecked Grebe

We never saw this Grebe, but Ticehurst saw them at Manchar Lake, and Roberts (1967) reports seeing several at Kandhkot in February 1965.]

Podiceps ruficollis (Pallas). Little Grebe

Common and generally distributed resident. Seen on the nest near Hyderabad in early July.

Pelecanus sp. Pelicans

Pelicans were only observed in the extreme south of Sind, where flocks of up to 150 occur on some lakes (e.g. Muradani), and along the coast. Both the White (*P. onocrotalus*) and Dalmatian (*P. philippensis*) occur, but were not always specifically identified. They are winter visitors, extreme dates being October 10 and February 28 (compare Ticehurst ; November 30 and March 5), except for a party of 25, believed to be White Pelicans, present at Hadeiro as late as May 23 in 1965.

Phalacrocorax sp. Cormorants

All three species of cormorants occurring in India are very common in Lower Sind, and outside the breeding season, numbers on lakes where there is extensive flooded tamarisk, such as the Kalri seepage zone, run into thousands. The Indian Shag (*P. fuscicollis*) and Little Cormorant (*P. niger*) are often difficult to distinguish at a distance, and like Ticehurst we cannot be sure of the distribution of the Shag in Upper Sind, where the Little Cormorant is probably more widespread than the other two species.

Anhinga rufa (Daudin). Darter

Common and widely distributed in small numbers, and not necessarily confined to the larger jheels as stated by Ticehurst, for we have met it in pools in inundated forests etc.

Ardea cinerea Linnaeus. Grey Heron**Ardea purpurea** Linnaeus. Purple Heron

Both species are common residents, but the Purple Heron, which is usually seen in two's or three's near reed beds, is the more widely distributed bird.

Butorides striatus (Linnaeus). Little Green Heron

Due to its secretive crepuscular habits, this heron was seen infrequently but it must be a common bird of the seasonally inundated swamps and forests along the river, where most of our records were obtained. On rare occasions, however, they can be seen at the open water edge in broad daylight. In the field, this bird never struck either of us as having the green gloss to the plumage from which it is named. In late June, a nest with 2 eggs was found in a back-water near Sukkur, in a dense acacia bush overhanging the water.

Ardeola grayii (Sykes). Pond Heron

Very widely distributed, favouring small ponds and wet thickets, but also occurring commonly in the mangrove swamps at Karachi. Small breeding colonies were found near Sukkur in late May and June, in canal-side *Dalbergia* trees, and in a Cattle Egret colony.

Bubulcus ibis (Linnaeus). Cattle Egret

A very common bird of the irrigated tracts, generally in parties or small flocks. Ticehurst found it far commoner in Upper Sind than further south, but this is no longer true following the spread of irrigation supplies to Lower Sind.

In the breeding season they are rarely seen far from their breeding colonies. One such colony of several hundred nests was located in the riverain forests just above Sukkur on May 25, 1964, with up to 5 or 6 nests in some trees, and some of these already contained well-grown nestlings. Several sitting birds were noted without the buff nuptial plumes. The breeding season would appear to be earlier here than over northern India generally, and may depend on the Indus inundation rather than on the monsoon which barely reaches Sind. In the heat of the day, parents were seen to fly to and fro from the river, apparently bringing water in the down of their breasts to the nests or chicks.

Egretta alba (Linnaeus). Large Egret

Widely although thinly distributed, and usually seen singly, or in two's or three's. A few also frequent the tidal mudflats and mangroves.

[Egretta intermedia (Wagler). Smaller Egret

We have probably overlooked this egret, as Roberts reports having seen it quite commonly at Kandhkot.]

Egretta garzetta (Linnaeus). Little Egret

Generally distributed but probably not as numerous as the Cattle Egret. A few nests were found in the Cattle Egret colony in May, and others were seen later in early July.

Egretta gularis (Bosc). Indian Reef Heron

A very common bird along the coast, where the majority are dark phase birds (although white phase birds are apt to be mistaken for other egrets). Ticehurst notes that they only occasionally stray a little way inland, but we saw two's or three's with surprising regularity in wet, saline districts in Lower Sind, and on three occasions at Hyderabad. Two were seen at Sehwan in August, nearly 200 miles up the river, but Roberts has seen over two dozen captive birds with the fishermen on nearby Manchar Lake.

Nycticorax nycticorax (Linnaeus). Night Heron

Common and widely distributed in waterlogged districts, especially in the south. Muradani in February contained at least 500 birds in the flooded tamarisk, the majority being immature. Being crepuscular, they can be easily overlooked, but their harsh croaks in the dusk reveal the birds fighting overhead to their feeding grounds.

[Ixobrychus minutus (Linnaeus). Little Bittern

According to Ticehurst, who only once saw it himself, the Little Bittern is a permanent but uncommon and local resident. We never saw it, although constantly looking for it, but Roberts saw a female at Manchar Lake in December 1966.]

Ixobrychus cinnamomeus (Gmelin). Chestnut Bittern

This is the most widely distributed of the small bitterns, occurring quite commonly in reed beds, but also occasionally in wet thickets beside canals etc., and is probably resident. Like the other bitterns, it is overlooked unless dusk or dawn watches are kept over reed beds, although the patient observer hidden in the reeds even by day is sometimes rewarded. A short view of a bird in flight, the most usual view, is generally sufficient for identification, for the upper parts appear a uniform chestnut-brown (richer in the male), without streaking, and with no black on the wing. Underparts are paler, with a dark mid-ventral streak in the male.

Ixobrychus sinensis (Gmelin). Yellow Bittern

This bittern is more confined to reed beds than the previous bird, although these need not be large. All our records are between May and August, so it is possibly a summer visitor. Even from a short view in flight, the uniform tawny-buff plumage with black primaries is quite distinctive.

Dupetor flavicollis (Latham). Black Bittern

The Black Bittern is more local than the previous two forms; we found them to be quite common at Jamraohead and around Sujawal, but have only scattered records elsewhere. Ticehurst himself never

saw it, but presumed from earlier records that it was a resident bird, although our records are all between May and August. It appears rather larger than *Ixobrychus*, and being apparently all black, it can readily be mistaken in the late dusk, for other black water birds flying over the reeds. A closer view reveals yellow sides to the throat.

***Botaurus stellaris* (Linnaeus).** Bittern

A winter visitor to reed beds, seen occasionally near Sukkur, and once at Jati, in December and February.

***Ibis leucocephalus* (Pennant).** Painted Stork

Our only record is of two at Manchar Lake in August 1965. Although it may still be quite common in the tidal zone it has decreased drastically, as Ticehurst found it 'common wherever there are jheels of any size' in Central and Lower Sind, 'usually in small flocks of a dozen or so'. They formerly bred in the East Nara District.

[*Anastomus oscitans* (Boddaert). Openbill Stork

We never found the Openbill Stork, although Ticehurst considered it to be a 'fairly common bird in the "watery" parts of Sind . . . round the edges of most jheels of any size', breeding in the East Nara District.]

[*Ciconia episcopus* (Boddaert). Whitenecked Stork

The only record for Sind is of one at Sukkur in 1879. Neither Ticehurst nor we recorded it.]

***Ciconia ciconia* (Linnaeus).** White Stork

Ticehurst considered that the White Stork was a rather uncommon winter visitor. It is certainly scarce now, although one or two are occasionally seen in winter in Lower Sind (we also saw 2 at Sujawal as late as May 9). However, the presence of a flock of over 300 in a jheel near Ladiun in November suggests that they may still visit the delta zone quite commonly.

***Ciconia nigra* (Linnaeus).** Black Stork

The decline of the Black Stork seems to have been in progress early in the century, as Hume in the last century met vast numbers along the Indus, whereas Ticehurst only saw it occasionally. We have only three records, all of single birds in November and February.

***Xenorhynchus asiaticus* (Latham).** Blacknecked Stork

A very sparse resident along the sand banks of the Indus; we have also seen it along the coast, and a family party of one adult and three immatures at Manchar Lake in August (our most northerly record).

Ticehurst considered it to be not uncommon in the better-watered parts of Central and Lower Sind.

[*Leptoptilos dubius* (Gmelin). Adjutant

Like the Black Stork, the Adjutant had already declined prior to Ticehurst's time, for neither he nor we have seen it in Sind.]

***Threskiornis melanocephala* (Latham). White Ibis**

Ticehurst states that this 'is pretty common on the inland waters, and on some jheels large flocks are to be met with'. It bred in the East Nara District. It is now apparently confined to the delta, where it is still said to breed. Apart from 2 birds south of Badin, our only record is of a flock of about 200 on a jheel near Ladiun in November 1965.

***Pseudibis papillosa* (Temminck). Black Ibis**

A solitary bird seen along a tree-lined canal near Sukkur in September 1964 is poor comparison to Ticehurst's statement that 'the Black Ibis is very common in the better-watered parts, and large flocks may be met with around most jheels'. Occasional birds may still breed in the delta, although we failed to see it at Ladiun.

***Plegadis falcinellus* (Linnaeus). Glossy Ibis**

This ibis does at least seem to be still maintaining its distribution in Lower Sind, where flocks of 300 or 400 are occasionally met with feeding in irrigated fields or around undisturbed jheels. Small parties were seen regularly in the seepage zone of Kalri Lake. Our most northerly records are from Manchar Lake. Nevertheless numbers have declined very considerably since Ticehurst's time.

***Platalea leucorodia* Linnaeus. Spoonbill**

The Spoonbill is still quite common in Lower Sind, and parties of 20 or 30 were seen throughout the summer at Kalri or Hadeiro, with numbers increasing to over 100 on some lakes in winter. Still this does not bear comparison with the 'serried ranks' and 'vast concourse' described by Ticehurst, constituting 'one of the ornithological sights of Sind.' We never saw the spoonbill north of Hyderabad.

***Phoenicopterus roseus* Pallas. Flamingo**

Flamingos can be seen at most seasons in Lower Sind (we have no records north of Hyderabad), notably at Kalri Lake and adjacent jheels, or in small parties scattered along the desolate coastline adjoining the Rann of Kutch. There is no better or easier place to watch them than from the high bund of Kalri Lake, as they roost or feed desultorily in the seepage zone below you,

During 1965, we kept a tally of numbers at the three lakes of Kalri, Jhol and Hadeiro, and from about a hundred at Kalri Lake in February, numbers rose steadily to an estimate of some 2,500 at the three lakes on May 30. Numbers then dropped slowly, to less than a hundred in August, when they may have been shifting back to their assumed origin in the Rann of Kutch to breed. Less than 50 per cent of these birds were in adult plumage, although the proportion of adult birds increased as the numbers dwindled. There is a possibility that some flamingos in winter are visitors from a more northerly breeding ground.

[We never identified the Lesser Flamingo (*Phoeniconaias minor*) amongst these flocks.]

[**Anser** spp. Geese

There is no doubt that wintering geese have declined very considerably, and perhaps quite recently, and when questioned local wildfowlers will comment on this. We ourselves never saw any, but Greylag (*A. anser*) are said to be still common in some years on the coast. A wildfowl survey of the sub-continent is currently being undertaken by C.D.W. Savage, under the auspices of the Wildfowl Trust (1965).]

[**Cygnus** spp. Swans

Stragglers of all three species have been recorded from Sind, although we have no records or reports of any.]

Dendrocygna javanica (Horsfield). Lesser Whistling Teal

This duck was considered by Ticehurst to be a permanent resident, but apart from flocks of 50 to 100 in Tatta District in November, all our records were between May and September. Some may well be overlooked in the packs of winter wildfowl, and probably a fair number do over-winter, especially in the south. However, one of their main summer strongholds is the great stretch of inundated riverain forests that extend along the length of the Indus, and as these forests are only flooded in summer, the bird is here a summer visitor, (although it is scarce in Upper Sind). They arrive in the second half of May, and for a few weeks can be seen each evening in fair numbers, before they become dispersed over their summer territories.

[We never identified the Large Whistling Teal (*D. bicolor*) amongst these parties, although a few might be expected.]

Tadorna ferruginea (Pallas). Ruddy Sheld-duck

This is now a scarce winter visitor, and certainly rarer than formerly as Ticehurst considered it 'much commoner in Upper than in Lower Sind'.

Tadorna tadorna (Linnaeus). Common Sheld-duck

This is also scarce, and we only saw them a few times on Kalri Lake, in very small numbers. However, they are reported to be not uncommon in Lower Sind in some winters.

Anas angustirostris Ménétriès. Marbled Teal

According to Ticehurst, this was formerly a pretty common duck on shallow-water jheels in Central Sind, and some may have bred occasionally at Manchar Lake. J.O.W. saw several pairs at a small jheel at Tando Musti Khan, near Khairpur, in March 1965, and these may well have been breeding. Local wildfowlers reported that they were year-round residents, to be found only on this particular jheel.

Anas acuta Linnaeus. Pintail

This is one of the commonest ducks that visit the Sind jheels, as indeed it was in Ticehurst's day, numbering over a thousand on many jheels.

Anas crecca Linnaeus. Common Teal

The Common Teal is nearly as common as the Pintail, and some wildfowlers suggest that it may be the commonest wildfowl in Upper Sind.

Anas poecilorhyncha J. R. Forster. Spotbill Duck

The Spotbill is apparently resident in Lower Sind, where flocks of 20-50 birds may be encountered at almost any season, while some jheels may have 50-100 birds in winter. We never saw it in Upper Sind.

Anas platyrhynchos Linnaeus. Mallard

The Mallard is widely distributed, although not very abundant. It prefers shallow water and fairly dense cover, and totals in the reed beds and rushes around suitable jheels probably run into several hundred.

Anas strepera Linnaeus. Gadwall

To quote Ticehurst, 'taking Sind as a whole the Gadwall is out-and-out the commonest duck', in numbers that were 'incredible'. It now appears to be rare over most of Sind, although it is a duck that tends to be overlooked. This species has probably suffered the most noticeable decline of any duck in Sind.

Anas penelope Linnaeus. Wigeon

Not as common as the Pintail and Teal, but a few jheels in the south may hold well over 500 Wigeon. In 1965, they remained at Kalri Lake well into April, and there were 5 drakes at nearby Jhol on May 16.

Anas querquedula Linnaeus. Garganey

The Garganey is mainly a passage migrant, passing through Sind from mid-September to mid-November, and again from mid-February to mid-April. At these seasons they are fairly common. Probably a few over-winter, and in 1965 a pair was seen at Jhol on May 16.

Anas clypeata Linnaeus. Shoveller

The Shoveller is an abundant winter visitor, and although not as common as the Pintail and Common Teal, some jheels may hold well over 500 birds. Two drakes were seen at Khairpur as late as June 1 in 1964, and two remained until the end of May at Jhol in 1965.

Netta rufina (Pallas). Redcrested Pochard

This duck is now generally very scarce, and has clearly decreased since Ticehurst's time. However, it may still be quite common in some years on deeper jheels around Larkana and Kandhkot, and in the desert fringe east of Sanghar. In 1964, J.O.W. saw two drakes near Sukkur as late as June 7.

Aythya ferina (Linnaeus). Common Pochard

This is the commonest of the diving duck, and large sheets of water may hold flocks of up to 500 birds. However, numbers have probably declined slightly, since Ticehurst records ' vast flocks '.

Aythya nyroca (Güldenstädt). White-eyed Pochard

Although probably overlooked, this pochard has declined drastically, as Ticehurst found it ' one of the most universally distributed and numerically abundant species ', and Sálím Ali (1928) thought it to be the commonest duck at Manchar Lake. Perhaps only in some years, quite large numbers are still found on some jheels. Several were seen near Sukkur at the end of May in 1964, with one duck as late as June 7.

Aythya fuligula (Linnaeus). Tufted Duck

The Tufted Duck is slightly less common than the Common Pochard, but favours the same deep, open water. 5 birds were seen at Kalri Lake on August 1, 1965.

Nettapus coromandelianus (Gmelin). Cotton Teal

Apparently Ticehurst never himself saw this duck in Sind, and it is certainly rare and local, perhaps confined to Lower Sind. Our only record is of a party of 8 at Sujawal in May 1965. Sujawal District is probably the stronghold of several of the endemic wildfowl. C.D.W. Savage (personal communication) reported them at Haleji Lake in July, and in some winters it is reported to be quite widely distributed in south-west Sind.

[**Sarkidiornis melanotos** (Pennant). Nukhta

We ourselves never found the Nukhta, but it is reported to be still a sparse resident along the Indus, and possibly around Sujawal, in Lower Sind.]

[**Mergus albellus** Linnaeus. Smew

Roberts reports that one or two have been recorded lately at Manchar and near Sanghar, but we never saw it.]

Mergus merganser Linnaeus. Goosander

Our only record of sawbills is of a female, believed to be of this species, seen by J.O.W. on the Indus at Sukkur in February 1965.

Elanus caeruleus (Desfontaines). Blackwinged Kite

This is one species that may have benefitted from the agricultural development of Sind, for it was formerly rather uncommon. It is now a widely, although thinly, distributed resident in the cultivated districts.

Milvus migrans (Boddaert). Black Kite

Abundant in towns and villages. Numbers increase in winter, when the Blackeared race (*M. m. lineatus*) is also encountered.

Haliastur indus (Boddaert). Brahminy Kite

Widely distributed in small numbers near water, including the canals.

Accipiter badius (Gmelin). Shikra

Accipiter nisus (Linnaeus). Sparrow-Hawk

The two are treated together, as we could never be certain of their separation in the field. The Shikra is the resident bird, and young were heard in the nest near Sukkur at the end of May. The Sparrow-Hawk is a winter visitor. They are thinly distributed in well-timbered cultivated districts.

Buteo rufinus (Cretzschmar). Long-legged Buzzard

There is an urgent need for a comprehensive field-guide to Indian birds of prey, and the buzzards and eagles especially present considerable problems to the amateur in the field. The Long-legged Buzzard is the only buzzard that we have certainly identified, and is quite a common winter visitor, affecting desert, cultivation and jheels alike, as noted by Ticehurst.

Butastur teesa (Franklin). White-eyed Buzzard-Eagle

Common resident, especially in well-timbered cultivated districts.

Nisaetus fasciatus (Vieillot). Bonelli's Hawk-Eagle

According to Ticehurst, this was a common resident of the Indus inundations and jheels. We have only few records, but may well have over-looked it, for Roberts suggests that it may be not uncommon.

[We never identified the Booted Hawk-Eagle (*Hieraetus pennatus*) in Sind.]

[Aquila heliaca Savigny. Imperial Eagle

Roberts has recorded this eagle at Manchar Lake and in the tidal creeks at Karachi, as well as in the Khirtar Hills, but we never certainly identified it.]

Aquila rapax (Temminck). Tawny Eagle

The Tawny Eagle is the most widely distributed eagle in Sind, and certainly the commonest resident, favouring cultivation, including quite dry areas. Immatures are common in May.

[The Steppe Eagle (*Aquila nipalensis*) was not identified, but may be a winter visitor to jheels.]

Aquila clanga Pallas. Greater Spotted Eagle

This is a common winter visitor to jheels, and a few may be resident. Eates (1937) has described the status of this and other eagles in Sind. At the end of November, 1963, a small scale migration was apparently in progress near Jati.

Haliaeetus leucoryphus (Pallas). Pallas's Fishing Eagle

Thinly distributed on the larger jheels and on the Indus. Nestlings are present in February.

Torgos calvus (Scopoli). Black or Pondicherry Vulture

[This should not be confused with the Black Vulture (*Aegyptus monachus*) of Europe, named Cinereous Vulture in Ripley.]

This vulture, which according to Ticehurst was fairly common in the canal areas, has now nearly deserted Sind, for our only record is of one seen by D.A.H. at Jati in December 1963.

Aegyptus monachus (Linnaeus). Cinereous Vulture

A winter visitor in small numbers to Karachi.

Gyps fulvus (Hablizl). Griffon Vulture

One or two may generally be seen with Whitebacked Vultures at most carcasses and roosts, and it is a common visitor to the Karachi rubbish tips, although it probably does not breed in the plains.

Gyps bengalensis (Gmelin). Indian Whitebacked Vulture

West Pakistan is erroneously omitted from the range of this vulture in Ripley, (see Waite, 1962) but it is in fact the most widely distributed vulture in Sind, in the plains and adjacent desert areas. They breed colonially in winter, perhaps commencing in October, while a few may still be breeding in June.

Neophron percnopterus (Linnaeus). Egyptian Vulture

Very common, especially around towns and villages. Nesting has been observed, on tombs, in May, but numbers decline in Upper Sind in summer.

Gypaetus barbatus (Linnaeus). Bearded Vulture

Found only in the Khirtar Range, where Roberts has seen it in January as low as 1800 feet. (In the Bolan Pass, on the road to Quetta, J.O.W. has seen them below 1000 feet in winter.)

Circus sp. Harriers

Harriers are common winter visitors to Sind, from about mid-September to mid-April. The Marsh Harrier (*C. aeruginosus*) is the commonest, frequenting jheels, but the great majority are female or immature ; very few adult males were seen, although one was present at Kalri Lake on April 17. The other harriers are less easy to identify, but the Pale (*C. macrourus*) and Montagu's (*C. pygargus*) would appear to be commoner than the Hen Harrier (*C. cyaneus*). [We never saw the Pied Harrier (*C. melanoleucos*).]

Circaetus gallicus (Gmelin). Short-toed Eagle

Probably rare and local, and only definitely seen twice, in desert scrub near Karachi and over a swamp near Jati.

[**Spilornis cheela** Crested Serpent Eagle

Never seen by us, and Ticehurst knew of only two records in Sind.]

Pandion haliaetus (Linnaeus). Osprey

A common winter visitor to the Indus, jheels, and the coast, a few birds remaining until early May.

Falco biarmicus Temminck. Lanner Falcon

A rather sparse resident, in cultivation and desert scrub, and even sometimes on the outskirts of towns. The only form identified by us is the Laggar Falcon (*F. b. jugger*).

Falco peregrinus Tunstall. Peregrine Falcon

A winter visitor in small numbers, generally to jheels.

Falco subbuteo Linnaeus. Hobby

One record only, of a fine male on a low, barren jebel at Hyderabad on April 23.

[We did not find the Merlin (*Falco columbarius*) which must be only a rare visitant.]

Falco chicquera Daudin. Redheaded Merlin

Resident in small numbers in cultivated areas, perhaps commoner in Upper than Lower Sind.

Falco tinnunculus Linnaeus. Kestrel

A not uncommon winter visitor, favouring desert scrub, sides of jebels etc. One near Karachi on September 29 is the earliest arrival date.

[Ammoperdix griseogularis (J. F. Brandt). Seese Partridge

Not recorded by ourselves, but presumably still occurs in the Khirtar hills, together with the Chukor Partridge (*Alectoris graeca*.)]

Fracolinus francolinus (Linnaeus). Black Partridge

Common and widely distributed in the damp and wooded areas, but perhaps not as abundant as in Ticehurst's day.

Fracolinus pondicerianus (Gmelin). Grey Partridge

Commoner than the Black Partridge. It prefers drier land, even desert scrub, although we have flushed them from trees in the forests at Sukkur when these were flooded.

Coturnix coturnix (Linnaeus). Common Quail

We did not find Quail common, although doubtless large numbers are overlooked unless they are beaten up. Our scattered records are all from mid-September to mid-April, and as Ticehurst suggests, the majority are likely to be passage migrants. We heard the calls in September and February, but Ticehurst points out that they can be heard at any season.

[We have no records of the Rain Quail (*C. coromandelica*.)]

Pavo cristatus Linnaeus. Common Peafowl

Originally introduced into Sind, it appears to be common in the wild state only in S.E. Sind (approximately east of a line from Shahdadpur-Hyderabad-Badin).

[We have no record of Bustard-Quails (*Turnix* sp.).]

Grus grus (Linnaeus). Common Crane

Cranes are now rather uncommon winter visitors, and our records are all from south of Hyderabad, of small parties around jheels or on

the coast, or on migration in September and March. Probably they are still common on the coast, but have apparently declined considerably. The only cranes identified have been of this species, but doubtless the Demoiselle Crane (*Anthropoides virgo*) occurs also. [The Sarus Crane (*Grus antigone*) and Great White Crane (*G. leucogeranus*) must now be only vagrant to Sind.]

Rallus aquaticus Linnaeus. Water Rail

A rare winter visitor, our only record is of several near Sukkur on November 11, 1964.

Porzana sp. Crakes

Crakes are seen quite commonly in reed beds in winter, but only rarely with a sufficiently good view for identification. Both the Little Crake (*P. parva*) and Spotted Crake (*P. porzana*) were identified in the Sukkur area. [Ticehurst also records Baillon's Crake (*P. pusilla*) in Sind.]

Amaurornis phoenicurus (Pennant). Whitebreasted Waterhen

A common resident of irrigated districts, especially the wetter areas, favouring especially the shallow swampy sides of canals, breeding through the summer.

Gallixrex cinerea (Gmelin). Water Cock

The Water Cock or Kora was previously known from a very few records only, and Ticehurst did not find it. During our first two years, we had only one unconfirmed record, near Sujawal in Lower Sind, in June 1963. However, on June 6, 1965, we saw two males in the same area, and subsequently we found them throughout June and July at virtually every swamp we visited in Lower Sind, often in some numbers, until our field trips ceased in August. The most northerly record was at the barrage at Hyderabad. Only on one occasion was a solitary female seen, the rest all being noisy and aggressive males.

It is not possible to define its status from these records, but probably it is increasing sharply in Lower Sind, as a summer visitor (in numbers that vary from year to year). Visits to the same swamps in 1965 prior to June failed to reveal any. However, local people are familiar with the bird, under the name 'tubar'.

Gallinula chloropus (Linnaeus). Moorhen

Quite a common and generally distributed resident, although Ticehurst found it rather scarce in Central and Lower Sind.

Porphyrio porphyrio (Linnaeus). Purple Moorhen

Widely distributed and very common in jheels with plentiful reeds

and rushes, especially where lotus lilies are growing. They are readily flushed with much clattering of wings and reeds, while any sudden noise will set them off in a raucous clamour. There appears to be some local movement, perhaps as a result of variations in water levels.

Fulica atra Linnaeus. Coot

An abundant winter visitor to open jheels. We did not see the vast herds of Coot that Ticehurst recorded, although Kalri Lake has several thousands in winter. Ticehurst states that they do not breed in Sind, and his latest date was May 5. However, small numbers certainly over-summer, and a few may well breed.

[Bustards

Bustards seem to be declining rapidly, and we saw neither bustards nor the Lesser Florican (*Sypheotides indica*), which was formerly a rains visitor. The Great Indian Bustard (*Choriotis nigriceps*) was formerly not uncommon in the east of Sind, and Roberts reports that one was shot in recent years near the Rajasthan border. However, we had several reports that the Houbara (*Chlamydotis undulata*) still arrives in Sind in small numbers in September.]

Hydrophasianus chirurgus (Scopoli). Pheasant-tailed Jacana

Common on shallow jheels with plentiful rushes, lotus etc.

Haematopus ostralegus Linnaeus. Oyster catcher

A winter visitor to Karachi harbour, a few over-summering.

Vanellus leucurus (Lichtenstein). Whitetailed Lapwing

A fairly common winter visitor to marshes and margins of jheels throughout Sind. Most had left by the end of March.

[**Vanellus vanellus** (Linnaeus). Lapwing or Peewit

Not recorded by us, but according to Roberts it is a common visitor, at any rate in some years, to Kandhkot in Upper Sind. We have no knowledge of the Sociable Lapwing (*V. gregarius*) in Sind.]

Vanellus indicus (Boddaert). Redwattled Lapwing

Widely distributed throughout the irrigated and damper parts of the province. Young chicks were seen as far apart as late-March and late-August.

Vanellus malabaricus (Boddaert). Yellow-wattled Lapwing

Ticehurst states that this lapwing is virtually unknown in Sind outside the drier areas of Lower Sind and the Karachi area, where it is a

summer visitor. We have only seen it at Landi, near Karachi, in summer, in small numbers along the margins of the cultivated Malir valley, and adjacent desert scrub. It especially favours fallow fields.

Pluvialis squatarola (Linnaeus). Grey Plover

A winter visitor in comparatively small numbers, to the coast and occasionally to jheels inland in Lower Sind. A few over-summer on the coast in winter dress.

Pluvialis dominica (P. L. S. Müller). Eastern Golden Plover

Our only records of Golden Plovers are of a party of 8 at Jhol as late as May 16, 1965, and a few at Hadeiro on May 23. All had left by May 30. Some of these had attained breeding plumage, and appeared to be of this form, and not *P. apricaria*, which is known from only very few records in Sind. Ticehurst found *P. dominica* uncommon, and his latest date was March 12.

Charadrius leschenaultii Lesson. Large Sand Plover

A common winter visitor to the coast, it is less common than *C. mongolus*, and was not identified among the parties of the latter bird inland.

Charadrius hiaticula Linnaeus. Ringed Plover

Our only record of this rare coastal visitor was of a solitary bird at Jhol on May 16, 1965, well seen at close range.

Charadrius dubius Scopoli. Little Ringed Plover

A winter visitor and very common passage migrant, while some (*C. d. jerdoni*) are resident along the Indus sand banks.

Charadrius alexandrinus Linnaeus. Kentish Plover

A common resident, favouring especially the coast, but also the sandy shores of the Indus and canals, and saline flats surrounding jheels. Breeding was suspected on the coast in April, and at Jhol in May.

Charadrius mongolus Pallas. Lesser Sand Plover

As stated by Ticehurst, this is one of the commonest, if not the commonest, wader wintering on the coast, but, according to him, unknown in the rest of Sind. In the spring of 1965, there was a sizeable passage through the more saline jheel margins of Lower Sind. On May 16, it was the commonest wader at Jhol, mostly in moult, but with a few in full breeding plumage. On May 28, there was a party of 30 in a saline mud-flat by the road to the barrage at Hyderabad. Numbers were declining by May 30, with some 50 at Jhol and 100 at Hadeiro, and the last seen was one at Hyderabad on June 12. These records

were during a period of inland passage of several species of coastal waders.

Numenius phaeopus (Linnaeus). Whimbrel

A visitor to the coast, mostly as a passage migrant, we have seen one at Kalri Lake as early as July 18.

Numenius arquata (Linnaeus). Curlew

A common winter visitor to the coast, and to jheels near the coast, where flocks of a hundred or more may be seen, but rather scarce and local elsewhere in Sind.

Limosa limosa (Linnaeus). Blacktailed Godwit

An abundant winter visitor to jheels, where flocks of hundreds, or even thousands, are encountered in suitable terrain. Several hundreds were present at Kalri, Jhol and Hadeiro lakes in the second half of May, 1965 (with most birds having only limited amounts of the summer dress showing through). At the end of June, there was still some 150 on these waters, but less than a quarter of that in July; numbers were rising again by mid-August.

Limosa lapponica (Linnaeus). Bartailed Godwit

A winter visitor to the coast, but neither Ticehurst nor we saw it inland. However, Roberts has a record from Kandhkot.

Tringa erythropus (Pallas). Spotted Redshank

A common winter visitor. It is strange that Ticehurst found it very rare in Lower Sind, as it seems now to be just as common as further north, and occasionally figures as one of the commonest waders at shallow, reedy jheels. They become scarce later in April, but the few that stay around, through to late-May, are in fine summer plumage.

Tringa totanus (Linnaeus). Common Redshank

A fairly common winter visitor, widely distributed in rather small numbers. Apart from a few on the coast, our extreme dates are August 1 and May 15.

Tringa stagnatilis (Bechstein). Marsh Sandpiper

It was not until early March, 1965, that we became aware of this species, and from then to about mid-April, they were seen commonly, in parties of 30 or so, and sometimes numbering up to 200 along about a mile of the nearly dry Pinyari Canal. Odd birds linger through to June, and the return migration commenced at the end of July. It would appear to be more of a passage migrant than a winter visitor.

Tringa nebularia (Gunnerus). Greenshank

A common and widely distributed visitor, especially on passage. They are met with in groups or small parties, although combined numbers may be quite high on any one stretch of water. Very few remain through June, but in 1965 the return passage was heard to commence on July 20, (during a night thunderstorm).

Tringa ochropus Linnaeus. Green Sandpiper

A very common visitor, with one or two birds to be found round every patch of stagnant water. Probably a greater number are passage migrants than winter visitors, and in Lower Sind at least, they are never as common as the Wood Sandpiper. Very few birds remain through May, although we were very surprised to find a flock of some 40 at Habibkot, near Sukkur, on June 26 ; the return passage is well under way by mid-July, although they are not widespread until August.

Tringa glareola Linnaeus. Wood Sandpiper

A winter visitor, and very abundant passage migrant through April to about the third week of May, and early August to about October, when the margins of jheels and the rice-fields are alive with their ringing calls. However, the spring passage was noted to be much less prominent in Upper Sind. We have no records of birds over-summering, but in 1965 the first arrivals were heard with the Greenshank on July 20.

Tringa terek (Latham). Terek Sandpiper

A common winter visitor to the coast, which we never found inland.

Tringa hypoleucos Linnaeus. Common Sandpiper

A widely distributed visitor, in comparatively small numbers, from the end of July to mid-May, on rivers and open margins of jheels. They are very common in the mangrove swamps at Karachi, resting on the mangroves or on boats at high tide.

Arenaria interpres (Linnaeus). Turnstone

A winter visitor to the coast, Ticehurst states that it is unknown inland in Sind. We did, however, find solitary birds in breeding plumage, at Jhol on May 16 and at Hyderabad on May 28, during the period of inland passage of coastal waders already referred to.

Capella gallinago (Linnaeus). Fantail Snipe

Very common winter visitor. [We have no records of the Pintail Snipe (*C. stenura*), which is recorded by Ticehurst.]

Capella minima (Brünnich). Jack Snipe

Winter visitor, less common than the previous species.

Scolopax rusticola Linnaeus. Woodcock

Recorded by Ticehurst as a very rare straggler ; we have no records.

[**Calidris tenuirostris** (Horsfield). Eastern Knot

We have no records of this winter visitor to the coast, but Roberts states that it is not uncommon near Karachi, up to late-April.]

Calidris albus (Pallas). Sanderling

A winter visitor to the coast, which we rarely visited, but a few were seen near Karachi on May 23, in various plumage phases.

Calidris minutus (Leisler). Little Stint**Calidris temminckii** (Leisler). Temminck's Stint

These two stints are treated together, being confusing in the field unless carefully separated. Both are abundant in winter and on passage on the muddy edges of pools and jheels. Quite large flocks are encountered at times of passage (e.g. 500 on a pool near Hyderabad on May 15, and already 100 there on July 27). From the end of March, stints are beginning to develop summer plumage.

Calidris alpinus (Linnaeus). Dunlin

A common winter visitor to the coast, where odd birds over-summer (some in summer plumage) ; they are not very common inland, although we saw small parties in Lower Sind in May (latest date, May 30) ; on May 23 at Hadeiro, they were one of the commonest small waders, in tight, noisy, high-flying flocks of up to 100 birds, mostly in summer dress. Like many waders, they tend to keep together in these wild little flocks in April and May.

Calidris testaceus (Pallas). Curlew-Sandpiper

Like the Dunlin, these are met with inland in Lower Sind on passage, in May (latest date, May 28) and August (earliest date, July 27). These passage birds are nearly all in summer plumage. A few over-summer on the coast in winter dress.

[**Limicola falcinellus** (Pontoppidan). Broadbilled Sandpiper

We have no records of this coastal wintering species.]

Philomachus pugnax (Linnaeus). Ruff

Comparatively few over-winter, but on December 15, there was a party of several hundred at a small pool near Jati. They are more commonly seen on passage, from mid-August to October, and late-February to mid-April, generally in small parties, and never in breeding

plumage. Our latest date is April 18, considerably earlier than most waders, and they are later to arrive in the autumn.

Phalaropus lobatus (Linnaeus). Rednecked Phalarope

According to Ticehurst, a common winter visitor to the seas off Sind, and regular inland on autumn passage, but he adds that 'on spring passage they naturally do not halt', and he only saw one inland at that season. We saw a few at Hyderabad in September, whereas there was a sizeable inland passage in May 1965. There were 28 at Hadeiro on May 23, 20 at Hyderabad on May 28, and up to 80 at Jhol on May 30 (but none at Hadeiro). Many were in breeding dress. They were very tame, allowing a close approach as they swam in circles in shallow water.

Rostratula benghalensis (Linnaeus). Painted Snipe

A rather rare and local bird, our few records are all in May and June, when several were seen around shallow jheels or in flooded grass in the riverain areas at Sukkur and Hyderabad. An adult male with four well-grown chicks was seen on June 5, but none were seen there after June 12. Roberts has seen it at Manchar, and regularly at Kandhkot, in winter.

Himantopus himantopus (Linnaeus). Blackwinged Stilt

A very common winter visitor, from August to May, with many also resident. They are seen in parties or occasionally flocks of a hundred or more, and are widely dispersed over the small jheels and even village ponds. A concentration of some 200 in the seepage zone at Kalri Lake on June 27 suggests that some over-summering birds do not breed, but most in summer are spread out in their territories. In May, birds were seen incubating on small mud mounds in a drying-up pool at Hyderabad, and a family of 4 young chicks was seen there on June 12. The families are fully grown and becoming dispersed by mid-July.

Recurvirostra avosetta Linnaeus. Avocet

According to Ticehurst, this is a winter visitor and passage migrant, and apart from a solitary bird on June 22, his extreme dates are August 28 and May 24. However, since it breeds in the Great Rann of Kutch, it is perhaps not surprising that we found large flocks in the Tatta area in the summer of 1965. In fact there were some 620 at Hadeiro on May 30, and a few on adjacent waters. At the end of June and July, numbers were down to about 100 at Kalri, Jhol and Hadeiro (but 38 were seen near Larkana on June 25), and only solitary birds were present in August. By contrast, we have few winter records !